



Dart Hawkesbury
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

D4456-3
Job Sheet 164987



Part No: D4456-3

Job Qty: 4 ea

Part Name: Aft Raingutter, LH



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 9/30/17

Job Tracking No:

Due Date: 10/31/17

Created By: Mario Poulin

Type: Stock

Description:

Note: DWG REV A SHEETS 4,6 IPP REV:A 11.11.21 NEW ISSUE DD VERF:EC

Ship Via:

Bill of Materials

Part/Part Name	Part Note	Serial No	Quantity	Location
D4456-3 Aft Raingutter, LH M60610S.032 6061 0 Sheet .032	DWG REV A SHEETS 4,6 IPP REV:A 11.11.21 NEW ISSUE DD VERF:EC		0.000	

Job Routing

Op No	Operation	Qty	Due Date	Standard		Workcenter/S
				Setup hrs	Run Hrs	
90	Start up Operation	4 Ea	10/30/17	0.00	0.00	Start up container
144	Outsource <i>P10038268</i>	4 pcs	10/30/17	0.00	0.00	Outsource1 <i>Q2 7/10/17</i>
146	Packaging	4 pcs	10/30/17	0.00	0.00	Packaging2 <i>Q2 7/10/17</i>
148	QC	4 pcs	10/30/17	0.00	0.00	QC6 <i>Q2 7/10/17</i>
150	HandFinish	4 pcs	10/31/17	0.00	0.29	HandFinish1 <i>Q2 7/10/17</i>
160	QC	4 pcs	10/31/17	0.00	0.00	QC7 <i>Q2 7/10/17</i>
170	Packaging	4 pcs	10/31/17	0.00	0.00	Packaging3 <i>Q2 7/10/17</i>
180	QC21-SA	4 Ea	10/31/17	0.00	0.00	QC21 <i>Q2 7/10/17</i>

Part: D4456-3 B164987

Created: 9/30/17 1:24 PM DART.MICHAUD-FEBRILLE VICTORIA



Serial No: S000254

Printed By: Goldston, Justin 10/2/17 10:45 AM

Job BOM

Part / Item	Component Name	Quantity	Operation	Special Comments
D4456-3 B164987		16 Ea (4 ea)	90-Start up Operation	

Job Allocations

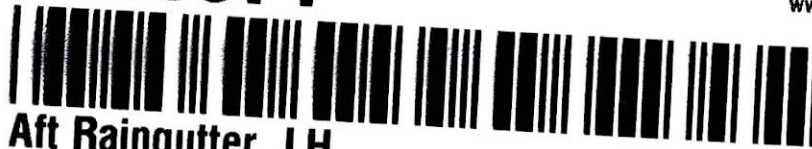
Operation	Component Part	Required	Inventory	Allocated	Std Qty
90-Start up Operation	D4456-3 B164987	16	4	0	0

Part Specifications

Spec No	Description	Target/Tolerance	Limits	Type	Special Comments
1	Aft Raingutter, LH	0.080Inches + 0.004 - 0.001	0.084 0.079	Diameter	
2	Aft Raingutter, LH	0.191Inches + 0.005 - 0.010	0.196 0.181	Diameter	
3	Aft Raingutter, LH	0.500Inches ± 0.010	0.510 0.490		
4	Aft Raingutter, LH	0.250Inches ± 0.030	0.280 0.220		
5	Aft Raingutter, LH	1.600Inches ± 0.030	1.630		

DART
AEROSPACE
S008071

Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K64 1K7
CANADA
TEL.: 1 613 632-5200
Email: sales@dartaero.com
www.dartaerospace.com



Aft Raingutter, LH

PART NO:
Revision:
Operation:
Change No:

D4456 - 3

Start up Operation

Mfg Date: 11/09/17
Job No: 164987

			1.570
6	Aft Raingutter, LH	0.190Inches $\pm$ 0.030	0.220 0.160
7	Aft Raingutter, LH	1.610Inches $\pm$ 0.030	1.640 1.580
8	Aft Raingutter, LH	4.150Inches $\pm$ 0.030	4.180 4.120
9	Aft Raingutter, LH	4.970Inches $\pm$ 0.030	5.000 4.940
10	Aft Raingutter, LH	1.090Inches $\pm$ 0.030	1.120 1.060
11	Aft Raingutter, LH	1.440Inches $\pm$ 0.030	1.470 1.410
12	Aft Raingutter, LH	3.870Inches $\pm$ 0.030	3.900 3.840
13	Aft Raingutter, LH	4.500Inches $\pm$ 0.030	4.530 4.470
14	Aft Raingutter, LH	4.660Inches $\pm$ 0.030	4.690 4.630
15	Aft Raingutter, LH	0.032Inches $\pm$ 0.010	0.042 0.022

Plex 10/1/17 2:25 PM Dart.Baker.Diane

DART
AEROSPACE
S014372

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CANADA
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Email: sales@dartaero.com
www.dartaerospace.com



Aft Raingutter, LH

PART NO: D4456 – 3
Revision:
Operation: Outsource
Change No:

Mfg Date: 11/27/17
Job No: 164987

Work Order Summary

Thursday, September 28, 2017 2:32:49 PM

Page 1 of 1

Criteria : Work Order ID: 164987 Item ID: D4456-3 Product Family SMALL FAB
Work Order Start Dates 8/14/2017 to 8/14/2017 11:59:59 PM Work Order Required Dates 8/28/2017 to 8/28/2017 11:59:59 PM
All References
Work Order Status Released

Work Order ID 164987 Required Qty 4.0000 Status Code Released
Item ID D4456-3 Accepted Qty 0.0000 Scrap Qty 0.0000
Item Name Aft Raingutter, LH
Current Acct Value \$61.936

Start Date 8/14/2017 Required Date 8/28/2017 Completed Date

Standard ** Actual ** ** Acct. Value ** ** Variance ** ** Variance % **

Direct Costs	Total	Each	Each	Each	Each
Material	\$1.107	\$0.000	\$0.300	\$0.300	100.00%
Labor	\$30.570	\$0.000	\$9.382	\$9.382	100.00%
Outplant	\$0.000	\$0.000	\$27.539	\$27.539	100.00%
Variable Burden	\$0.000	\$0.000	\$0.000	\$0.000	0.00%
Fixed Burden	\$81.801	\$0.000	\$24.715	\$24.715	100.00%
Material Burden	\$0.000	\$0.000	\$0.000	\$0.000	0.00%
** Total **	\$113.478	\$0.000	\$61.936	\$61.936	

Item ID/Item Name	Required Qty	Issue Code	Issue Date	Issued Qty	Cost Amount
M60610S.032					
6061 0 SHEET .032	0.5263		9/28/2017	0.6000	\$1.107
Total Matl Amts:					\$1.107

Work Center Small Fab

Employee ID	Rout Seq ID	Labor Date	Setup Hours	Actual Setup Hours	Labor Hours	Actual Labor Hours	Nbr of WOs	Setup Amount	Labor Amount	Fix Burd Amount	Var Burd Amount	Total Amounts
LECL01												
9/26/2017												
130			0.00	0.00	1.20	1.20	1.00	\$0.000	\$24.723	\$66.155	\$0.000	\$90.877
Total:			0.00	0.00	1.20	1.20	1.00	\$0.000	\$24.723	\$66.155	\$0.000	\$90.877

Work Center Waterjet

Employee ID	Rout Seq ID	Labor Date	Setup Hours	Actual Setup Hours	Labor Hours	Actual Labor Hours	Nbr of WOs	Setup Amount	Labor Amount	Fix Burd Amount	Var Burd Amount	Total Amounts
conw01												
8/17/2017												
100			0.00	0.00	0.28	0.28	1.00	\$0.000	\$5.847	\$15.647	\$0.000	\$21.494
Total:			0.00	0.00	0.28	0.28	1.00	\$0.000	\$5.847	\$15.647	\$0.000	\$21.494

Thursday, September 28, 2017 2:32:49 PM

Work Order Summary

Page 1 of 1

Work Order ID 164987

Friday, August 11, 2017 11:08:38 AM

164987

Page 1

Item ID: D4456-3 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Aft Raingutter, LH
Start Date: 8/14/2017 Start Qty: 4.00 ***4*** Cust Item ID:
Required Date: 8/28/2017 Req'd Qty: 4.00 ***4*** Customer:
Reference:

Approvals: Process Plan: DAS 21 9-89 Date: AUG 11 2017 Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D4456	A								
100	FLOW WATER JET	0.00							
100									
Waterjet	Memo	0.20							
FLOW CNC Waterjet	1-Cut as per Dwg Dwg Rev: <u>A</u> Prog Rev: <u>A</u> 2-Deburr if necessary								
110	QC2- Inspect parts off machine FAI/FAIB	0.00							
110									
QC	Memo	0.04							
Quality Control									
120	QC8- Inspect parts - second check	0.00							
120									
QC	Memo	0.08							
Quality Control									

DAS
38
9-89

AUG 17 2017

Friday, August 11, 2017 11:08:38 AM

Page 2

Outsource process - Heat Treat

Friday, August 11, 2017 11:08:38 AM

Page 3

Stop *NR2*

[illegible]

Friday, August 11, 2017 11:08:38 AM

164987

Page 4

N900040100

Setup Start *NS1*

Stop *NS2*

4

Cust Item ID:

4

Customer:

Required Date: 8/28/2017 **Req'd Qty:** 4.00

Reference:

Approvals: _____ **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

160 QC7-Inspect Chemical Conversion Coat

0.00

160

0.04

QC Memo

Quality Control

170 Identify as per dwg & Stock Location:_____ 0.00

0.00

170

0.04

Packaging Memo

Packaging

180	QC21- Final Inspection - Work Order Release	0.00
-----	---	------

0.00

180

0.40

QC Memo

Quality Control

Picklist Print

Friday, August 11, 2017 11:08:37 AM

Page 1

Work Order ID: 164987

164987

Parent Item: D4456-3

D4456-3

Parent Item Name: Aft Raingutter, LH

Start Date: 8/14/2017

Required Date: 8/28/2017

Start Qty: 4.00

Required Qty: 4.00

Comments: IPP REV:A 11.11.21 NEW ISSUE DD VERF:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M60610S.032		Purchased	No			100	sf	114.6000	0.125	0.526316			
M60610S 032									**		08/17/17		
6061 0 SHEET .032													

Location

Loc Qty

Loc Code

MAT021

114.6

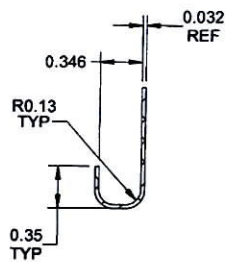
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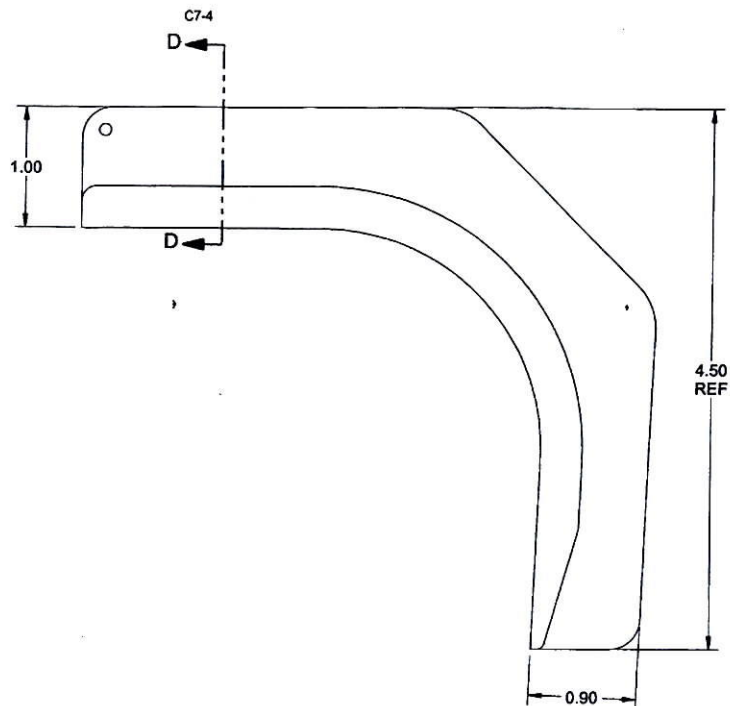
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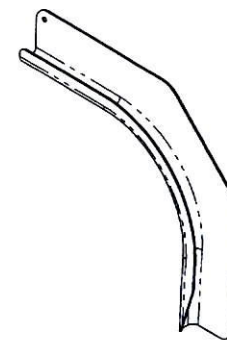
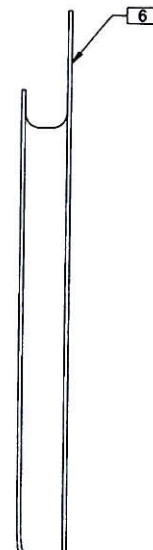
.6



SECTION D-D C6-4



D4456-3 AFT RAINGUTTER, LH



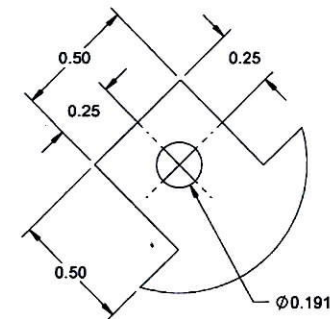
SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 16498745
170811

RELEASED
2012-01-17

NOTES:

- 1) MATERIAL: MAKE FROM D4456-3F FLAT PATTERN
HEAT TREAT TO 6061-T6 CONDITION AFTER FORMING
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.1
- 7) WEIGHT: 0.04 lbs
- 8) TRIM TABS ON THE HIDDEN LINES AFTER FORMING

DESIGN	RF	DART AEROSPACE USA, INC.	
DRAWN	RF	KENT, WA	
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. A
MFG. APPR.	<i>[Signature]</i>	D4456	SHEET 4 OF 8
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	RAINGUTTER	NTS
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DETAIL F B7-6
TYP C6-6
D5-6

RELEASE
JAN 17 2012

DESIGN	RF	DART AEROSPACE USA, INC.	
DRAWN	RF	KENT, WA	
CHECKED	RF	DRAWING NO.	REV. A
MFG. APPR.	RF	D4456	SHEET 6 OF 6
APPROVED	RF	TITLE	SCALE
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Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER PO038268

Items												
Line Item	Job	Part	Rev	Description	Item Tax	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
				NOTE: PART ARE MADE FROM MATERIAL 6061-0 SHEET.032								
				DETAIL C OF C REQUIRED								
4	✓ 164982	D4456-2 ✓	-	Fwd Raingutter, RH HEAT TREAT TO 6061-T6		Firmed	11/16/17	✓ 4 pcs	0 pcs	4 pcs	\$67.1875/pcs	\$268.75
				NOTE: PART ARE MADE FROM MATERIAL 6061-0 SHEET.032								
				DETAIL C OF C REQUIRED								
5	✓ 164987	D4456-3 ✓	-	Aft Raingutter, LH HEAT TREAT TO 6061-T6		Firmed	11/16/17	✓ 4 pcs	0 pcs	4 pcs	\$67.1875/pcs	\$268.75
				NOTE: PART ARE MADE FROM MATERIAL 6061-0 SHEET.032								
				DETAIL C OF C REQUIRED								
6	✓ 164990	D4456-4 ✓	-	Aft Raingutter, RH HEAT TREAT TO 6061-T6		Firmed	11/16/17	✓ 4 pcs	0 pcs	4 pcs	\$67.1875/pcs	\$268.75
				NOTE: PART ARE MADE FROM MATERIAL 6061-0 SHEET.032								
				DETAIL C OF C REQUIRED								

4x
SP 11-27
4x
SP 11-27
4x
SP 11-27

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ
ST-EUSTACHE, QC J7R 5A8
Tel: 450-473-1884 / Fax: 450-491-5498

Reçu de livraison

Delivery Receipt

BON DE TRAVAIL Order	EXPÉDITEUR Shipper ID	BON D'EXPÉDITION Shipper
323150	1	123880

EXPÉDITION COMPLÈTE / Shipped Complete

CLIENT /Customer 215

DART AEROSPACE

1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
Ph: 613-632-5200
Fax: 613-632-1053



LIVRÉ À /Shipped To

DART AEROSPACE

1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
Ph: 613-632-5200
Fax: 613-632-1053

COMMANDE DU CLIENT Customer PO	BON DE LIVRAISON DU CLIENT Customer Shipper No.	TYPE DE MATÉRIEL Material Type	DATE DE LA COMMANDE Order Date	TRANSPORTEUR Carrier
38268		AL-6061	2017/11/8	FEDEX

QUANTITÉ Quantity	No. PIÈCE / Part No.	NOM DE LA PIÈCE / Part Name	DESCRIPTION DE LA PIÈCE Part Description	POIDS Weight
----------------------	-------------------------	--------------------------------	---	-----------------

16 D4456-1

(4) D4456-1 JOB. 164979

(4) D4456-2 JOB 164982

(4) D4456-3 JOB 164987

(4) D4456-4 JOB 164990

1 SAC DE PAPIER

2017-11-27

TYPE DE CONTENEUR Container Type	# DE CONTENEURS # Of Containers	COMMENTAIRES CONTENEUR Container Comments
SAC DE PAPIER	1	

CERTIFICAT

EMPAQUETAGE Packing	
------------------------	--

QUANTITÉ EXPÉDIÉE / Quantity Shipped : 16

POIDS EXPÉDIÉ / Weight Shipped : 0,60

QUANTITÉ RESTANTE / Quantity Remaining : 0

POIDS RESTANT / Weight Remaining : 0,00

APPROUVE

CERTIFICAT

QUANTITÉ EXPÉDIÉE / Quantity Shipped: 16

POIDS EXPÉDIÉ / Weight Shipped : 0,60

Signature:

Date:

EXPÉDIÉ LE / Shipped On : 2017/11/23

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ, ST-EUSTACHE, QC, J7R 5A8

Tél.: 450-473-1884

Télécopieur / Fax administration: 450-491-5498

Télécopieur / Fax production: 450 491-6454

Certificat de Conformité Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
323150	1

CLIENT / customer 215

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K8A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K8A 1K7

1

COMMANDE DU CLIENT customer po	CLASSIFICATION PIECE part classification	MATÉRIEL material	MAÎTRE D'OEUVRE prime contractor	PROGRAM
38268	N/A	AL-8081		

SPÉCIFICATIONS DU PROCÉDÉ processing specifications

SOL ANNEAL

SINGLE AGING TO CONDITION T8

EXIGENCE / requirement	SPÉCIFICATIONS / specified	TESTS EXÉCUTÉS / performed	RÉSULTATS DE TESTS / results
CONDUCTIVITY	42,5 - 56,5 %IACS	4	46,9 - 47,2 %IACS
HARDNESS		4	91 - 96 HREW
MESURE EN HR15TW = 80-82 HR15TW			

QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description
16	0,6	D4456-1 (4) D4456-1 JOB. 164979 (4) D4456-2 JOB 164982 (4) D4456-3 JOB. 164987 (4) D4456-4 JOB 164990 1 SAC DE PAPIER

23/11/17

COMMENTAIRES / comments

APPROUVÉ par / Approved by:

[Signature]



DATE: 2017-11-23

APPROUVÉ

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ, ST-EUSTACHE, QC, J7R 5A8

Tél.: 450-473-1884

Télécopieur / Fax administration: 450-491-5498

Télécopieur / Fax production: 450 491-6454

Certificat de Conformité Détail

Detailed Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
323150	1

CLIENT / customer 215

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

1

COMMANDE DU CLIENT customer po	CLASSIFICATION PIECE part classification	MATÉRIEL material	MAÎTRE D'OEUVRE prime contractor	PROGRAM
38268	N/A	AL-6061		
SPÉCIFICATIONS DU PROCÉDÉ processing specifications				
SOL ANNEAL SINGLE AGING TO CONDITION T6				
EXIGENCE / requirement	SPÉCIFICATIONS / specified	TESTS EXÉCUTÉS / performed	RÉSULTATS DE TESTS / results	
CONDUCT	42.5 - 56.5 %IACS	4 (60 kHz)	46.9 - 47.2 %IACS	
HARDNESS	85 HREW MIN	4	91 - 96 HREW MESURE EN HR15TW = 80-82 HR15TW	
QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description		
16	0.6	D4456-1 (4) D4456-1 JOB. 164979 (4) D4456-2 JOB 164982 (4) D4456-3 JOB. 164987 (4) D4456-4 JOB 164990 1 SAC DE PAPIER		

COMMENTAIRES / comments

SOL. ANNEAL 985F, 35 MIN
AGE HARDEN 350F, 8 HRS

Heat treatment (HT) was performed with equipment that meets the requirements of requested specification. All HT operations were performed in compliance with the required HT specification and all verifications have been performed and documented. No unauthorized changes were performed in regards to the HT. We certify that the material was manufactured, sampled, tested and inspected in accordance with the material specification and the purchase order and was found to meet the requirements.

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Le traitement thermique (TT) a été fait en utilisant des équipements en conformité avec la spécification demandée. Toutes les opérations de TT ont été faites en conformité avec les requis de la spécification demandée et toutes les vérifications et les tests demandés ont été faites et documentés. Aucun changement n'a été faite par rapport au TT. On certifie que le matériel a été fabriqué, échantillonné, testé et inspecté en accord avec les spécifications du matériel et le bon de commande et le matériel rencontre les exigences spécifiées.

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METCOR INC.

560 BOUL. ARTHUR-SAUVÉ, ST-EUSTACHE, QC, J7R 5A8

Tél.: 450-473-1884

Télécopieur / Fax administration: 450-491-5498

Télécopieur / Fax production: 450 491-6454

Certificat de Conformité Détaillé

Detailed Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
323150	1

CLIENT / customer 215

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

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APPROUVÉ par / Approved by:

Isabel Otero
QA Technician



DATE: 2017-11-23